

Amendment and Response Under 37 C.F.R. §1.116 - Expedited Examining Procedure

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Serial No.: 09/691,006

Confirmation No.: 4510

Filed: 18 October 2000

For: IMAGING ELLIPSOmetry

an illumination source for providing incident light normal to the sample plane, wherein the incident light comprises linearly polarized light incident on the objective lens, wherein the linearly polarized light comprises p and s wave components, wherein the objective lens focuses the incident linearly polarized light onto the sample, and further wherein at least a portion of the focused incident polarized light is reflected by the sample resulting in reflected light, the reflected light comprising p and s wave components corresponding, respectively, to the p and s wave components of the incident light focused on the sample;

C 1) a spatial filter to modify at least a portion of the incident light or the reflected light, wherein the spatial filter is positioned at a plane of an exit pupil of the objective lens; and
C 2) an analyzer portion operable to generate polarization information based on the reflected light, wherein the polarization information is a function of the p and s wave components of the incident light having different reflectivities from the sample.

13. (Twice Amended) An ellipsometry method for use in providing an image of at least a portion of a sample, the method comprising:

providing an objective lens having a focal plane at which a sample plane of the sample is positioned;

providing linearly polarized light normal to the sample plane incident on the objective lens, wherein providing linearly polarized light comprises providing p and s wave components;

C 2) focusing the incident linearly polarized light onto the sample, wherein at least a portion of the focused incident polarized light is reflected by the sample resulting in reflected light, wherein the reflected light comprises p and s wave components corresponding, respectively, to the p and s wave components of the incident light focused on the sample;

spatial filtering at least a portion of the incident light or the reflected light using a spatial filter positioned at a plane of an exit pupil of the objective lens; and

generating polarization information based on the reflected light, wherein the polarization information is a function of the p and s wave components of the incident light having different reflectivities from the sample.

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27. (Once Amended) An ellipsometer apparatus for use in providing an image of at least a portion of a sample, the ellipsometer apparatus comprising:

an objective lens having a focal plane at which a sample plane of the sample is positioned;

C₃ an illumination source comprising an extended light source for providing incident light normal to the sample plane, wherein the incident light comprises p and s wave components, wherein the incident light comprises linearly polarized light incident on the objective lens, wherein the objective lens focuses the incident linearly polarized light onto the sample, and further wherein at least a portion of the focused incident polarized light is reflected by the sample resulting in reflected light, the reflected light comprising p and s wave components corresponding, respectively, to the p and s wave components of the incident light focused on the sample;

a spatial filter to modify at least a portion of the incident light or the reflected light, wherein the spatial filter is operable to break the azimuth symmetry of the incident light or the reflected light; and

an analyzer portion, wherein the analyzer portion is operable to generate polarization information based on the reflected light for use in generating an image of at least a portion of the sample using the polarization information, wherein the polarization information is a function of the p and s wave components of the incident light having different reflectivities from the sample.

35. (Once Amended) An ellipsometry method for use in providing an image of at least a portion of a sample, the method comprising:

C₄ providing an objective lens having a focal plane at which a sample plane of the sample is positioned;

providing linearly polarized light normal to the sample plane incident on the objective lens, wherein providing linearly polarized light comprises providing light from an extended light source, and further wherein the linearly polarized light comprises p and s wave components;

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focusing the incident linearly polarized light onto the sample, wherein at least a portion of the focused incident polarized light is reflected by the sample resulting in reflected light, wherein the reflected light comprises p and s wave components corresponding, respectively, to the p and s wave components of the incident light focused on the sample;

spatial filtering at least a portion of the incident light or the reflected light, wherein spatial filtering at least a portion of the incident light or reflected light comprises breaking the azimuth symmetry of the incident light or the reflected light;

generating polarization information based on the reflected light, wherein the polarization information is a function of the p and s wave components of the incident light having different reflectivities from the sample; and

providing an image of at least a portion of the sample using the polarization information.
